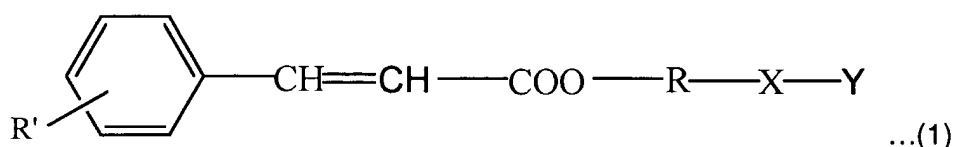


CLAIMS

What is claimed is:

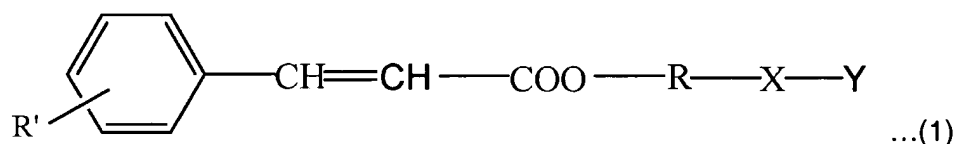
1. A lightfast colorant that is a cinnamate derivative of formula (1) below:



where R' is selected from the group consisting of a halogen atom, a nitro group, a substituted or unsubstituted C₁-C₂₀ alkyl group, a substituted or unsubstituted C₁-C₂₀ alkoxy group, a substituted or unsubstituted C₂-C₂₀ oxycarbonylalkyl group, a substituted or unsubstituted C₆-C₁₈ aryl group, and a substituted or unsubstituted C₇-C₁₉ alkylaryl group; R is selected from the group consisting of a substituted or unsubstituted C₁-C₃₀ alkylene group, a substituted or unsubstituted C₁-C₃₀ alkenylene group, a substituted or unsubstituted C₁-C₃₀ alkynylene group, a substituted or unsubstituted C₁-C₃₀ heteroalkylene group, a substituted or unsubstituted C₆-C₃₀ arylene group, a substituted or unsubstituted C₇-C₃₀ arylenealkylene group, a substituted or unsubstituted heteroarylene group, and a substituted or unsubstituted C₄-C₃₀ heteroarylenealkylene group; X is a linker selected from the group consisting of -CONH-, -NHCO-, -COO-, -OCO-, -CO-, -SO₂-, -SO₃-, -O-P(=O)(OH)-O-, and -O-P(OH)-O-; and Y is a colorant residue.

2. The lightfast colorant of claim 1, wherein said colorant residue Y is a remaining moiety of a dye or a pigment, and the moiety excludes the linker X that binds the colorant and the cinnamate derivative.

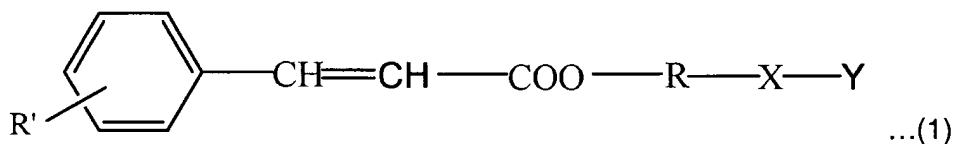
3. A lightfast ink composition comprising:
at least one lightfast colorant,
wherein the lightfast colorant is a cinnamate derivative of formula (1) below:



where R' is selected from the group consisting of a halogen atom, a nitro group, a substituted or unsubstituted C₁-C₂₀ alkyl group, a substituted or unsubstituted C₁-C₂₀ alkoxy group, a substituted or unsubstituted C₂-C₂₀ oxycarbonylalkyl group, a substituted or unsubstituted C₆-C₁₈ aryl group, and a substituted or unsubstituted C₇-C₁₉ alkylaryl group; R is selected from the group consisting of a substituted or unsubstituted C₁-C₃₀ alkylene group, a substituted or unsubstituted C₁-C₃₀ alkenylene group, a substituted or unsubstituted C₁-C₃₀ alkynylene group, a substituted or unsubstituted C₁-C₃₀ heteroalkylene group, a substituted or unsubstituted C₆-C₃₀ arylene group, a substituted or unsubstituted C₇-C₃₀ arylenealkylene group, a substituted or unsubstituted heteroarylene group, and a substituted or unsubstituted C₄-C₃₀ heteroarylenealkylene group; X is a linker selected from the group consisting of -CONH-, -NHCO-, -COO-, -OCO-, -CO-, -SO₂-, -SO₃-, -O-P(=O)(OH)-O-, and -O-P(OH)-O-; and Y is a colorant residue; and
an aqueous medium.

4. The lightfast ink composition of claim 3, wherein an amount of the lightfast colorant is in a range of 1-20 parts by weight with respect to 100 parts by weight of the ink composition.

5. A lightfast ink composition comprising:
a colorant;
at least one lightfast colorant,
wherein the lightfast colorant is a cinnamate derivative of formula (1) below:



where R¹ is selected from the group consisting of a halogen atom, a nitro group, a substituted or unsubstituted C₁-C₂₀ alkyl group, a substituted or unsubstituted C₁-C₂₀ alkoxy group, a substituted or unsubstituted C₂-C₂₀ oxycarbonylalkyl group, a substituted or unsubstituted C₆-C₁₈ aryl group, and a substituted or unsubstituted C₇-C₁₉ alkylaryl group; R is selected from the group consisting of a substituted or unsubstituted C₁-C₃₀ alkylene group, a substituted or unsubstituted C₁-C₃₀ alkenylene group, a substituted or unsubstituted C₁-C₃₀ alkynylene group, a substituted or unsubstituted C₁-C₃₀ heteroalkylene group, a substituted or unsubstituted C₆-C₃₀ arylene group, a substituted or unsubstituted C₇-C₃₀ arylenealkylene group, a substituted or unsubstituted heteroarylene group, and a substituted or unsubstituted C₄-C₃₀ heteroarylenealkylene group; X is a linker selected from the group consisting of -CONH-, -NHCO-, -COO-, -OCO-, -CO-, -SO₂-, -SO₃-, -O-P(=O)(OH)-O-, and -O-P(OH)-O-; and Y is a colorant residue; and
 an aqueous medium.

6. The lightfast ink composition of claim 5, wherein an amount of the colorant is in a range of 1-15 parts by weight, an amount of the lightfast colorant is in a range of 1-15 parts by weight, and a total amount of the colorant and the lightfast colorant is in a range of 2-20 parts by weight, with respect to 100 parts by weight of the lightfast ink composition.

7. The lightfast ink composition of claim 3, wherein the aqueous medium is one of: water and a mixture of 5-10% by weight of an organic solvent and 50-95% by weight of water.

8. The lightfast ink composition of claim 7, wherein the organic solvent is selected from the group consisting of methyl alcohol, ethyl alcohol, n-propyl alcohol, isopropyl alcohol, n-butyl alcohol, sec-butyl alcohol, t-butyl alcohol, isobutyl alcohol, acetone, methylethyl ketone, diethyl ketone, diacetone alcohol, methyl acetate, ethyl acetate, ethyl lactate, ethylene glycol, diethylene glycol, triethylene glycol, propylene glycol, butylene glycol, 1,4-butane diol, 1,2,4-butane triol, 1,5-pentane diol, 1,2,6-hexane triol, hexylene glycol, glycerol, glycerol ethoxylate, trimethylolpropane ethoxylate, ethylene glycol monomethyl ether, ethylene glycol monoethyl ether, diethylene glycol methyl ether, diethylene glycol ethyl ether, triethylene glycol monomethyl ether, triethylene glycol monoethyl ether, 2-pyrrolidone, N-methyl-2-pyrrolidone, dimethyl sulfoxide, tetramethylene sulfone, and thioglycol.

9. The lightfast ink composition of claim 3, further comprising at least one additive selected from the group consisting of a dispersant, a viscosity adjuster, a surfactant, a storage stabilizer, and a wetting agent, wherein an amount of the at least one additive is in a range of 0.5-40 parts by weight with respect to 100 parts by weight of the lightfast ink composition.

10. The lightfast ink composition of claim 5, wherein the aqueous medium is one of: water and a mixture of 5-10% by weight of an organic solvent and 50-95% by weight of water.

11. The lightfast ink composition of claim 10, wherein the organic solvent is selected from the group consisting of methyl alcohol, ethyl alcohol, n-propyl alcohol, isopropyl alcohol, n-butyl alcohol, sec-butyl alcohol, t-butyl alcohol, isobutyl alcohol, acetone, methylethyl ketone, diethyl ketone, diacetone alcohol, methyl acetate, ethyl acetate, ethyl lactate, ethylene glycol, diethylene glycol, triethylene glycol, propylene glycol, butylene glycol, 1,4-butane diol, 1,2,4-butane triol, 1,5-pentane diol, 1,2,6-hexane triol, hexylene glycol, glycerol, glycerol ethoxylate, trimethylolpropane ethoxylate, ethylene glycol monomethyl ether, ethylene glycol monoethyl ether, diethylene glycol methyl ether, diethylene glycol ethyl ether, triethylene glycol monomethyl ether, triethylene glycol monoethyl ether, 2-pyrrolidone, N-methyl-2-pyrrolidone, dimethyl sulfoxide, tetramethylene sulfone, and thioglycol.

12. The lightfast ink composition of claim 5, further comprising at least one additive selected from the group consisting of a dispersant, a viscosity adjuster, a surfactant, a storage stabilizer, and a wetting agent, wherein an amount of the at least one additive is in a range of 0.5-40 parts by weight with respect to 100 parts by weight of the lightfast ink composition.